

**Remarks/Arguments**

In the non-final Office Action dated September 3, 2008, it is noted that claims 1-16 are pending; that objection has been raised with respect to the claim 2; that claim 16 stands rejected under 35 U.S.C. §101 and 35 U.S.C. §112; that claims 1-16 stand rejected under 35 U.S.C. §103; that the drawings filed on January 11, 2006 have been accepted by the Examiner; that the claim for foreign priority under 35 U.S.C. §119 has been acknowledged; and that all certified copies of priority documents have been received.

By this response, claims 4 and 16 have been cancelled; claims 1 and 14 have been amended to clarify further an aspect of the subject matter defined therein represented substantially by the limitations in former claim 4; reference numerals have been deleted from claims 1, 3, 6, 7, 9, 14, and 15; claim 2 has been amended to correct an inadvertent grammatical error; and an inadvertent error with an indefinite article in each of claims 1, 9, 14, and 15 has been corrected. No new matter has been added.

***Objection to the Claim 2***

Objection has been made against claim 2 in the present Office Action. Claim 2, as amended, now calls for “the digital fingerprint is an audio fingerprint” as shown above. This amendment is believed to obviate the ground for objection. Withdrawal of this objection to the specification is also respectfully requested.

***Rejection of Claim 16 under both 35 U.S.C. §101 and 35 U.S.C. §112***

Claim 16 stands rejected under 35 U.S.C. §101 and 35 U.S.C. §112, first and second paragraphs. Since claim 16 has been cancelled, it is believed that these rejections are moot.

***Cited Art***

The following references have been cited and applied against the claims in the present Office Action: an article by G. Depovere et al. entitled “*Secret key watermarking with changing keys*”, pp. 427-9 published by the IEEE on September 10, 2000 (hereinafter “*Depovere*”); U.S. Patent Application Publication No. 2002/0028000 to Conwell et al. (hereinafter “*Conwell*”); and U.S. Patent 5,724,425 to Chang et al. (hereinafter “*Chang*”).

***Rejection of Claims 1- 3, 6-8, and 14 under 35 U.S.C. §103***

Claims 1- 3, 6-8, and 14 stand rejected under 35 U.S.C. §103 as being unpatentable over Depovere in view of Conwell. This rejection is respectfully traversed.

Claim 1 is an independent method claim. Claims 2-3 and 6-8 depend ultimately from claim 1. Claim 14 is an apparatus claim that includes limitations substantially similar to those found in claim 1. As such, the remarks below, while confined to claim 1, will be understood to pertain equally to claim 14 without further repetition.

Claim 1 calls for:

*A method of embedding a digital watermark in an information signal; the method comprising*

- *deriving a watermark secret from an identifier data item identifying the information signal by a function which is computationally hard or infeasible to invert;*
- *embedding a digital watermark in the information signal where said embedding is controlled by the watermark secret;*
- *calculating a digital fingerprint from the information signal;*
- *storing the calculated digital fingerprint as a reference digital fingerprint and storing, in relation to the reference digital fingerprint, said identifier data item.*

Depovere appears to disclose a device for embedding a watermark payload  $P_1$  into an information signal  $X_1$ , wherein one or more secret key patterns  $S_1, \dots, S_n$  are utilized for embedding the payload  $P_1$  into the information signal  $X_1$ . *See Depovere in Figure 4 and in Section 3 at pages 428-9.* In Depovere, the secret key patterns  $S_1, \dots, S_n$  are not constant over time and they depend on a robust signature. According to Depovere, the robust signature corresponds via a mapping to one of the secret key patterns  $S_1, \dots, S_n$ . Moreover, the robust features of the information signal  $X_1$  are combined by some technique into the robust signature.

As admitted on page 5 in the present Office Action, Depovere does not teach, show, or suggest “calculating a digital fingerprint”, “storing the calculated fingerprint”, and “storing, in relation to the reference digital fingerprint, said identifier item.” In order to cure these defects in Depovere, the present Office Action applies Conwell. But Conwell does not teach, show, or suggest these limitations and does not cure the defects noted with respect to Depovere.

Conwell appears to teach that fingerprint data obtained from some information content can be used as an identifier. *See Conwell’s Abstract.* This fingerprint is used as part of an identification process to trigger a response, such as performing a database lookup of the

complete content related to the fingerprint-based identification, which, in turn, leads to a number of possible applications. *See Conwell at paragraph [0030], for example.*

At no point in the reference does Conwell teach, show, or suggest “storing, in relation to the reference digital fingerprint, said identifier item”, wherein “the calculated digital fingerprint [is stored] as the reference digital fingerprint”, and wherein the “identifier data item identifying the information signal by a function which is computationally hard or infeasible to invert” is used for “deriving the watermark secret”, all as defined in claim 1. The identifier data item is additional data that is stored with the reference fingerprint. Conwell does not store or suggest storage of any additional data with the reference fingerprint. Even if Conwell were to store additional data with the reference fingerprint, Conwell lacks even a remote suggestion that such data, if it were to exist in Conwell, is used to derive a watermark secret or that such data was computed by a function which is computationally hard or infeasible to invert. Thus, Conwell does not cure the defects from the teachings of Depovere. The combination of Depovere and Conwell does not teach, show, or suggest all the limitations of claim 1.

There is no motivation to combine these references. These references are substantially mutually exclusive of each other. Depovere lacks any express desire to use, calculate, or store digital fingerprint information of the content signal. Instead, Depovere is only concerned with improving the security of watermark systems by creating more keys and changing keys, all stored at the watermark embedding and watermark detecting devices. Depovere can obtain his security and can operate without any digital fingerprint computation and storage. Conwell is not concerned with the security systems involved with embedding and detecting watermarks. Conwell uses his digital fingerprints of content to be able to quickly identify the underlying content without having to store a complete replica of the original (underlying) content in a library such as a song library. Once the content is identified, other operations can be performed to identify metadata about the content or the like. *See Conwell at paragraph [0030], for example.* Thus, the combination of Depovere and Conwell is improperly made.

Since the limitations from claim 4 have been added to claim 1, it is appropriate to address the Chang reference. Chang was added to Depovere and Conwell because it was admitted that they lacked any teachings that the “identifier data item identifying the information signal by a function which is computationally hard or infeasible to invert”. Even if Chang is assumed to teach computational infeasibility in the encryption art for public key encryption algorithms, there

is no teaching, showing, or suggestion in Chang that would cure the defects noted above in the teachings of Depovere and Conwell.

In light of these remarks, it is believed that independent claims 1 and 14 and the claims dependent thereon would not have been obvious to a person of ordinary skill in the art upon a reading of Depovere, Conwell, and Chang, either separately or in combination with the known art. Thus, it is submitted that claims 1-3, 6-8, and 14 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

***Rejection of Claims 4 and 5 under 35 U.S.C. §103***

Claims 4 and 5 stand rejected under 35 U.S.C. §103 as being unpatentable over Depovere in view of Conwell and further in view of Chang. Claim 4 has been cancelled. This rejection is respectfully traversed.

Claim 5 depends directly from claim 1 and include the limitations thereof, as discussed above.

Depovere and Conwell have been distinguished from claim 1 above. Chang was added to Depovere and Conwell because it was stated that it was admitted that they lacked any teachings that the “watermark secret is determined by a random process”. Even if Chang is assumed to teach determination of the watermark secret by a random process, there is no teaching, showing, or suggestion in Chang that would cure the defects noted above in the teachings of Depovere and Conwell.

In light of these remarks directly above and in view of the prior remarks made with respect to claim 1, it is believed that dependent claim 5 would not have been obvious to a person of ordinary skill in the art upon a reading of Depovere, Conwell, and Chang, either separately or in combination. Thus, it is submitted that claim 5 is allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

***Rejection of Claims 9-13 and 15-16 under 35 U.S.C. §103***

Claims 9-13 and 15-16 stand rejected under 35 U.S.C. §103 as being unpatentable over Conwell in view of Depovere. Claim 16 has been cancelled. This rejection is respectfully traversed.

Claim 9 is an independent method claim. Claims 10-13 depend ultimately from claim 9. Claim 15 is an apparatus claim that includes limitations substantially similar to those found in

claim 9. As such, the remarks below, while confined to claim 9, will be understood to pertain equally to claim 15 without further repetition.

The remarks presented above concerning Conwell and Depovere with respect to claim 1 pertain equally to the limitations found in claims 9 and 15. For the sake of brevity, those remarks will not be repeated and are incorporated herein by reference.

Neither Conwell nor Depovere teach, show, or suggest “detecting whether a digital watermark according to the watermark secret associated with the matching digital fingerprint is present in the information signal”, as defined in the claims. The present Office Action agrees that this teaching is lacking from Conwell. But the Office Action points to several portion of Depovere to cure this defect in Conwell. Depovere only appears to remove the embedded watermark and recover the payload,  $P_1$ . Depovere does not detect the presence of the watermark signal. Depovere simply attempts to use a key to remove the watermark. There is no attempt or suggestion in Depovere for “detecting whether a digital watermark according to the watermark secret associated with the matching digital fingerprint is present in the information signal”, as defined in the claims. Thus, the combination of Conwell and Depovere fail to teach all the limitations found in the claims.

In light of these remarks, it is believed that independent claims 9 and 15 would not have been obvious to a person of ordinary skill in the art upon a reading of Conwell and Depovere, either separately or in combination. Thus, it is submitted that claims 9-13 and 15 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

### ***Conclusion***

In view of the foregoing, it is respectfully submitted that all the claims pending in this patent application are in condition for allowance. Reconsideration and allowance of all the claims are respectfully solicited.

In the event there are any errors with respect to the fees for this response or any other papers related to this response, the Director is hereby given permission to charge any shortages and credit any overcharges of any fees required for this submission to Deposit Account No. 14-1270.

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